Phase	Type
X **Initial Site Investigation**	☐ Work Scope
☐ Corrective Action Feasibility Investigation	X **Technical Report**
☐ Corrective Action Plan	☐ PCF Reimbursement Request
☐ Corrective Action Summary Report	☐ General Correspondence
☐ Operations and Monitoring Report	

Summary Report of Findings

Former Dunkin Donuts Property
176 Main Street
Brattleboro, Vermont
DEC Site #99-2583

Prepared for:

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January 14, 2000

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1.0 Introduction

This is a summary report of findings for the former Dunkin Donuts property located at 176 Main Street in Brattleboro, VT. A Site Locus Map is presented as Figure 1. It was prepared by Environmental Compliance Services, Inc. (ECS) of Brattleboro, VT, on behalf of the site owner Robert Clapp, in accordance with a Work Plan submitted and approved by the Department of Environmental Conservation (DEC) in a letter dated November 17, 1999. Site investigations included:

- installation of two groundwater monitoring wells to a depth of 75 feet;
- sampling and analysis of groundwater for volatile organic compounds (VOCs) via EPA Method 8021b and total petroleum hydrocarbons (TPH) via EPA Method 8100M;
- advancement of two 30 foot soil borings;
- a soil gas survey in soils underlying and adjacent to the Brattleboro Chamber of Commerce building;
- assessment of the risk gasoline contaminants pose to the receptors present at the site;
- preparation of a summary report of findings.

2.0 Site History

During Environmental Site Assessment investigations in November 1998, gasoline contaminated soils were detected in the immediate vicinity of former gasoline underground storage tanks (USTs). The subject property was the site of a Dunkin Donuts restaurant from 1971 to 1998, the Holiday Restaurant from 1960 to 1971, an automotive service station from 1935 to 1960, and an automotive dealership dating back to the 1800s.

The site assessment report was submitted for review to the DEC in December 1998. In a letter dated February 18, 1999, the DEC listed the property on the Vermont Hazardous Sites List as site #99-2583. The DEC recommended the removal of the grossly contaminated soils from the site, assessing the potential for additional USTs and installation of a groundwater monitoring well to assess the potential for groundwater impact. The UST's formerly in use at the site were determined to be eligible for participation in the Petroleum Cleanup Fund (PCF) for costs incurred above a $10,000.00 deductible.

On May 21, 1999, ECS submitted a Work Plan and Cost Estimate to the DEC for the above noted work. On July 29, 1999, approximately 129 cubic yards of contaminated soil (exceeding 2,000 ppmv of VOCs were excavated and transported by Roger Farnsworth Construction (RFC) to a DEC approved off-site location in Westminster, VT. No evidence of additional USTs were found based on a ferromagnetic survey and excavation of four test pits to a depth of 6 feet.

On August 9, 1999, a groundwater monitoring well was installed in the same location as the soil boring (SB-1) advanced during the initial environmental site assessment. The well boring was advanced to a depth of 78 feet. The depth to groundwater was determined to be 65 feet below the PVC well head (approximate to ground surface). A second boring was advanced within the source area to delineate the vertical extent of the contaminated soil. Maximum VOC levels of 474 ppmv and strong gasoline odors

were detected at the 15-17 foot depth range. VOC levels decreased to 3-6 ppmv and no odors were detected from samples collected at the 22-24 foot and 24-26 foot depth ranges. Analytical results of groundwater samples collected from MW-1 for VOCs and TPH indicated the presence of 7.9 mg/l of TPH. Characterization of the sample's GC fingerprint unidentified the contamination as weathered petroleum product. No VOCs were detected in the groundwater sample.

On August 23, 1999, the monitoring well was re-sampled for the same parameters. Results indicated the presence of 0.9 mg/l of TPH. Petroleum identification again compared the sample GC fingerprint to unidentified weathered petroleum product. No VOCs were detected in this sample.

On August 24, 1999, ECS submitted a second work plan and cost estimate to the DEC for subsurface investigations to determine if soil contamination has migrated beneath Main and High Streets. ECS advanced a total of five soil borings in predrilled holes through the concrete sidewalk and pavement to a maximum depth of 27 feet below the ground surface. No significant levels of VOCs were detected.

Based on the absence of evidence suggesting the migration of soil contamination beneath the roadways, additional soil excavation occurred on site on September 27, 28, and 29, and October 1, 1999. Approximately 416 cubic yards of grossly contaminated soil was removed from the site during this time period and transported directly to the temporary stockpile area in Westminster. The total volume of soils stockpiled to date is 536 cubic yards.

As the excavation proceeded, it was determined that a large concrete basin approximately 43 feet in length, 20 feet wide and 15 feet deep was present along the southeastern property line. The basin was flat at its base, and 10-12 inch diameter wooden columns were evenly spaced throughout. Based on its estimated volume of 100,000 gallons and elliptical shape, the basin may have been used as a cistern in the 1800s (prior to the construction of any buildings) as part of the towns water distribution system. An article in the recent edition of the Vermont Business Magazine provides an overview of the use of cisterns in Brattleboro to supplement its early demand for potable water. A copy of this article is presented in Appendix A.

The former USTs were installed within the walls of the cistern and as a result the product released from the USTs was effectively adsorbed to fine-grained sand and silt present within the basin. Free product was encountered at the base of the concrete cistern. The concrete walls and base were removed (except for the southern wall which served to stabilize the excavation pit sidewall abutting High Street) to determine if gasoline had breached the concrete containment. While the concrete walls were effective at retaining much of the gasoline release, breakthrough occurred at the northeast end of the cistern resulting in the contamination of native soils and vertical migration beyond the depth of 20 feet.

Soil excavation proceeded in an easterly and northerly direction up to Main Street and the Chamber of Commerce building, respectively. VOC levels by PID increased with depth (from approximately 15 feet to 21 feet) to a maximum of 2,000 ppmv at approximately 10 feet from the south wall of the Chamber building. Soil excavation was not continued due to the likelihood of jeopardizing the integrity of the building and stability of Main Street. While soils in the concrete containment consisted primarily of fine grained sand, a preferential pathway for vapor migration exists in the vicinity of the chamber building

due to the presence of native soils in the vicinity of Main Street and the Chamber building consisting of medium to coarse grained sand and cobbles to a depth of 12 feet underlain by fine grained sand and silt.

A flower shop is located in the portion of the building abutting the site property. Dried flower arrangements are hung in the basement after spraying with a drying agent containing the VOCs acetone and ethyl acetate. VOC levels up to 5 ppmv were detected in the basement but no conclusions could be drawn from this screening due to the spraying agents used at this location.

A summary letter report with Work Plan and Cost Estimate, dated October 14, 1999, were submitted to the DEC for review. The DEC approved the work plan and cost estimate in a letter dated November 17, 1999.

3.0 Subsurface Investigations

3.1 Soil Borings

Drilling activities began on December 9, 1999, along the southern wall of the Brattleboro Chamber of Commerce building. A total of four borings were advanced from the southeast corner to the southwest corner of the building. A Site Plan shows the property layout and location of the soil borings (Figure 2).

Due to the substantial depth to groundwater, both wells could not be installed in one working day. Following the installation of each monitoring well, a shallow boring was advanced to a maximum depth of 32 feet, further west approximately 5 feet from the wall of the Chamber building. Split spoon soil samples were collected at five-foot intervals from the surface to 22 to 30 feet, the zone of gasoline contamination. Soil sampling resumed at a depth of 60 to 65 feet and continued to a maximum depth of 72 feet in the bore holes for the two groundwater monitoring wells.

All soil samples were field screened for VOCs using a Photovac Model 2020 PID calibrated to a 100 ppmv Isobutylene span gas. Soil characterization and VOC results are noted in the boring/well logs presented in Appendix B. A soil sample collected from the 18-29 foot depth range at SB-1 (ECS-2) was submitted for laboratory analysis of TPH via EPA Method 8100M. No petroleum hydrocarbons were detected above the minimum detection limit of 50 mg/kg. Analytical data sheets are included in Appendix C.

3.2 Groundwater Monitoring Wells

The monitoring wells were constructed of 2-inch diameter schedule 40 PVC well screen (slot size 10) and riser pipe which extended to a maximum depth of 77 feet below ground surface. Clean well grade sand was used as backfill to 1 foot above the 10-foot section of well screen. A 1-foot bentonite seal was placed above the sand pack. Clean native soil was used to backfill the riser pipe to approximately 30 feet below ground surface. A second 1-foot bentonite seal was established above the native fill. The well was completed using native fill to approximately 1 foot below ground surface where a protective flush mounted well box was cemented in place.

3.3 Soil Gas Survey

On December 10, 1999, ECS personnel cored through the concrete floor of the Chamber building basement. A soil gas survey (SGS) rod was advanced via slam bar 2 feet below the floor surface (approximately 9 feet below ground surface) and two air samples were drawn into Tedlar bags via an electric pump. The air samples were field screened for VOCs using the PID. VOCs level of 71 and 102 ppmv were detected. The 102 ppmv sample was submitted for laboratory analysis of VOCs via EPA Method 8021b. Toluene at a level of 30 parts per billion (ppb) was detected in this Tedlar bag sample. Laboratory data sheets are included in Appendix C. The SGS rod was advanced to 10 feet below the floor surface (17 feet below ground surface) and a third sample was collected. The SGS rod could not be advanced further using this method of advancement due to coarse grain soils. The VOC level at this depth was 18 ppmv. Laboratory analysis of this sample did not detect the presence of the compounds tested for.

VOC levels from the soil borings and SGS are summarized in the following table:

Sample Depth (feet)	General Soil Type	Sample Location and VOC Levels in ppmv				
		SB-1	SB-2	SB-3	SB-4	SB-5
0-2	no sample	-	-	-	-	71-102
5-7	SAND & silt – dry	4	0	0	0	
10-12	SAND & silt – dry	0.5	0	0.4	0.6	18
15-17	SILT & SAND – dry	0.3	0.3	1.2	0	-
20-22	SILT & SAND – dry	18	12	0.2	0.1	-
25-27	SILT & SAND – dry	0.8	60	-	2000+	-
30-32	SILT & SAND – dry	1.5	8	-	2000+	-
60-62	SAND – dry	0.7	-	-	-	-
65-67	SAND – wet	0.2	-	0	-	-
70-72	SAND – wet	0.1	-	0.2	-	-

VOC levels appeared to diminish substantially in the vicinity of the Chamber building and Main Street, but increased to the west towards the former Dunkin Donuts building. A distinct lens of gray silt was encountered at the 20-30 foot depth range that served as a confining layer to migrating gasoline. Negligible VOC levels were detected below this layer. Vertical migration of gasoline vapors has occurred beneath the footprint of the Chamber of Commerce building as evidenced by the presence of 71-102 ppmv of VOCs detected immediately beneath the concrete floor. Conformation of the presence of higher levels of gasoline contamination in soil via SGS analysis could not be confirmed at depths greater than 18 feet below the ground surface.

3.4 Groundwater Sampling and Laboratory Analyses

On December 14, 1999, the newly installed groundwater monitoring wells ECS-2 (SB-1) and ECS-3 (SB-3) were gauged, purged and sampled for analysis of VOCs via EPA Method 8021B. A groundwater sampling log is provided in Appendix B. Groundwater was present at 67.26 feet and 65.79 feet below the PVC well head at MW-2 and MW-3 respectively. No compounds tested for were detected. The laboratory data sheets are included in Appendix C. ECS-1 was damaged during excavation activities and could not be gauged to determine groundwater flow direction. The well remains in tact below the 10-15 foot depth range. The upper 10-15 feet is bent over at a 45° angle, but the well head can be located from the ground surface.

4.0 Risk Characterization

A release of gasoline has occurred to soils at the site. Based on historical site usage and the location of former gasoline USTs, product migration has occurred vertically to approximately 30 feet below the ground surface and horizontally, primarily in a northerly direction towards the Brattleboro Chamber of Commerce building, which abuts the 176 Main Street property. A dense silt lens located at the 20-30 foot depth range has apparently acted as a confining layer to the vertical migration of gasoline. Gasoline vapors are highest in the silty soils due to the greater storage capacity of these soils compared to the sandy soils located above and below the silt lens. No gasoline vapors were detected below the silt lens as determined by PID, and laboratory analysis of samples collected from the site monitoring wells did not reveal the presence of gasoline related contamination. Therefore, no threat to sensitive receptors exists from exposure to groundwater, particularly given that the subject area is serviced by the municipal drinking water system.

While vertical migration of gasoline contaminants has been restricted by the silty soils, horizontal migration has occurred in a northerly direction. Gasoline related vapors were detected beneath the Chamber building at levels ranging from 72 ppmv to 102 ppmv of VOCs based on PID screening of soil gas immediately beneath the concrete basement floor. Toluene was detected (30 ppb) in the SGS sample collected beneath the concrete floor. VOC levels diminished towards Main Street along the southern wall of the Chamber building from ECS-1 (18 ppmv) but increased in a westerly direction to at least 2000 ppmv at SB-4.

The potential for impact to the indoor air of the Chamber building does exist in the event a crack exists now or in the future in the concrete floor. The horizontal extent of soil contamination beneath additional buildings located further north is unknown. The gasoline related VOCs detected at SB-4 may have migrated along the silt lens from the former site gasoline USTs or may have originated from an off-site source located upgradient to the west. The Town Manager, Jerry Remillard indicated that properties located north of the site on High Street were historically used as auto dealerships with underground storage of gasoline. There appears to be a distinction between the gasoline contamination originating from the former site USTs and the VOCs detected at SB-4, based on the spatial proximity of SB-4 to the former UST locations, and previous soil excavation activities where gasoline related VOCs were not detected in soil outside of the cistern area in the western portion of the site.

5.0 Conclusions

1. A soil gas survey conducted along the southern wall and beneath the concrete floor in the basement of the Chamber of Commerce building revealed the presence of gasoline related VOCs ranging from 1.2 ppmv to +2000 ppmv, by PID. The majority of the soil gas contamination was detected in areas west of ECS-2, immediately adjacent to the Chamber building. VOC levels ranging from 71 to 102 ppmv were detected beneath the concrete floor of the Chamber building, with Toluene detected immediately beneath the concrete floor at a level of 30 ppb.

2. The vertical extent of the gasoline related contamination was determined to be approximately 30 feet below the ground surface. A dense silt lens ranging from 20 to 30 feet below the ground surface served as a confining layer to further product migration. The horizontal extent of contamination has yet to be defined.

3. Evidence was obtained that substantial gasoline vapors were detected at SB-4; the soil boring advanced at the junction of the former Dunkin Donuts building and the Chamber building. Former auto dealerships with underground gasoline storage may have occurred in the past in areas upgradient and west of the site.

4. Depth to groundwater at the site was gauged to be approximately 65 to 67 feet below the ground surface. Laboratory analyses indicated the absence of the contaminants tested for.

5. A risk of indoor air contamination from the gasoline release to occupants of site and nearby structures does exist due to the relatively shallow depth and high levels of gasoline related vapors, and the more porous sandy soils that exist above the silty soils that continue to serve as a source of this contamination.

6.0 Recommendations

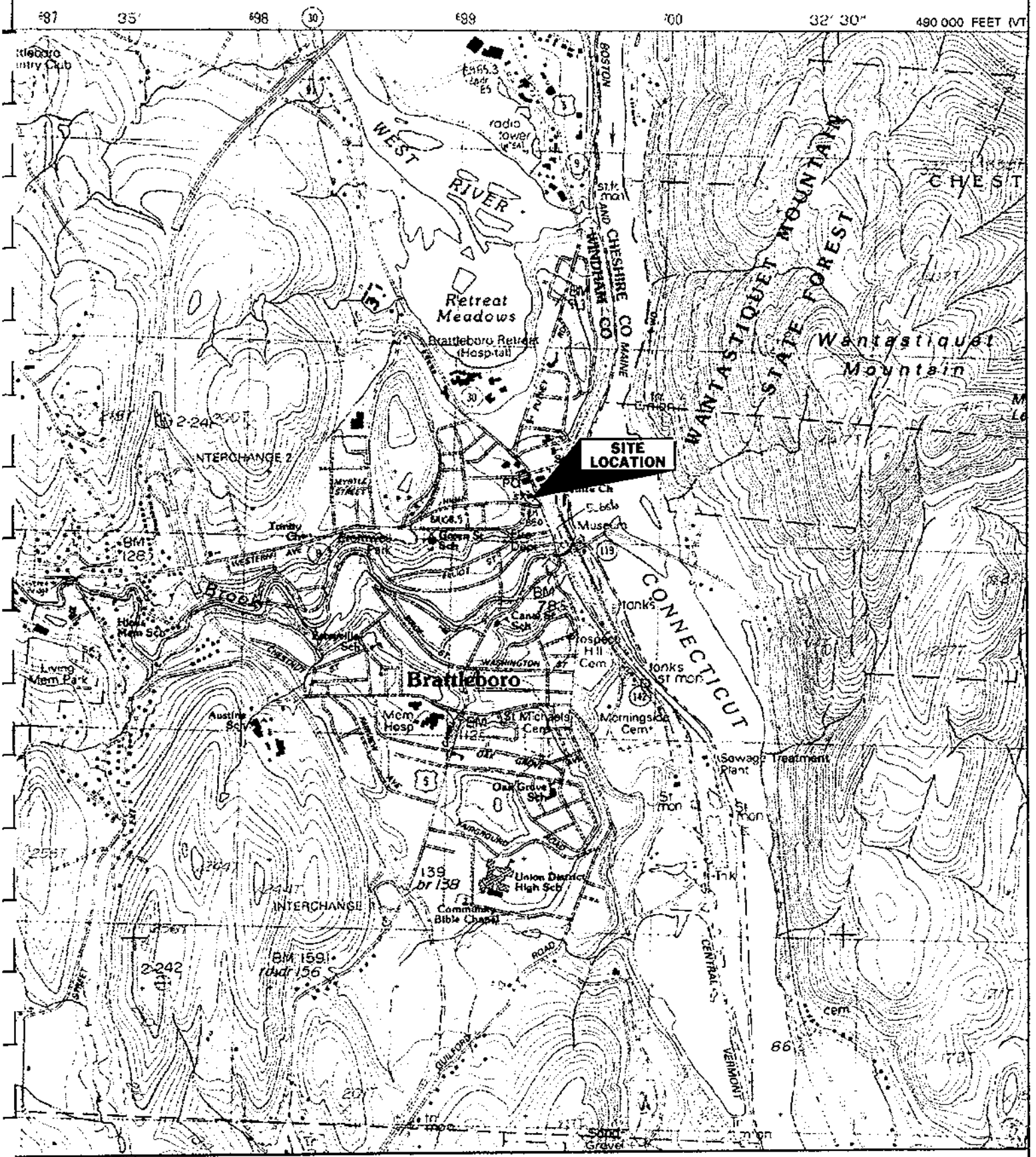
1. Historical research should be conducted on properties located west of the site to determine possible locations of former or current gasoline USTs.

2. A soil boring should be advanced further west to define the limit of contamination in this area of the site. Additional SGS points should be advanced in the Chamber building (particularly in the western end) and additional structures to the north, if required pending Chamber results, to define the horizontal extent and degree of gasoline vapors in this area of the site.

3. Based on the extent and degree of the gasoline related vapors detected, the potential risk posed to human sensitive receptors can better be defined. Given the elevated levels of VOCs detected at SB-4, the potential for much higher levels of gasoline vapors existing beneath the western end of the Chamber building and/or additional structures does exist.

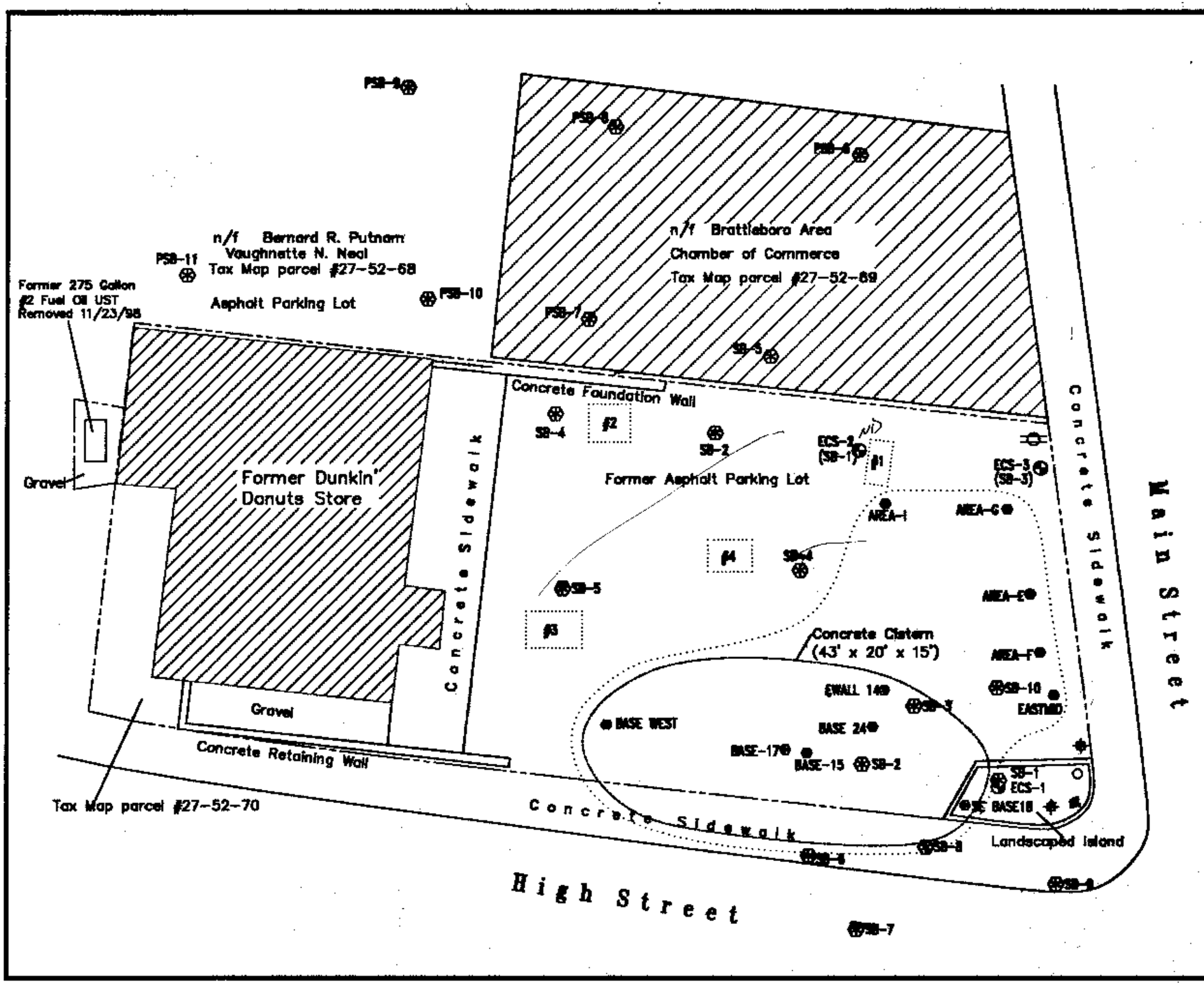
4. Based on the VOC levels detected to date immediately south and beneath the Chamber building, a Corrective Action Plan appears to be warranted to eliminate the threat of indoor air contamination originating from the gasoline vapors located in soils beneath this and possibly nearby buildings. NO

5. ECS-1 should be repaired to provide a third groundwater monitoring well, which will allow for triangulation of groundwater flow direction at the site. YES



Name: BRATTLEBORO
Date: 1/21/100
Scale: 1 inch equals 2000 feet

Location: 042° 51' 03.5" N 072° 33' 37.6" W
Caption: Figure 1
Clapp Property
176 Main Street
Brattleboro, VT



Legend

- Approx. Property Line
- Light Post
- Sign Post
- SB-4 — Soil Boring ID
- Soil Boring 8/23/99
- SB-2 — Soil Boring ID
- Soil Boring 8/9/99
- SB-2 — Soil Boring ID
- Soil Boring 12/9/99
- PSB-6 — Proposed Soil Boring ID
- Proposed Soil Boring
- ECS-1 — Monitoring Well ID
- Monitoring Well
- Fire Hydrant
- Soil Sample Location
- Fence
- Extent of Excavation
- Concrete Cistern
- #1 — Test Pit
- Fire Alarm Box

ENVIRONMENTAL COMPLIANCE SERVICES, INC.
207 Old Guilford Road, #8, Brattleboro, VT

176 Main Street
(Former Dunkin' Donuts)
Brattleboro, VT

Site Plan

Robert Clapp

DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:
CS	CS	BET	BET
SCALE:		JOB NO.:	DRAWING NO.:
1" = 10'	Jan. 2000	40189	2

APPENDIX A

1900 1960

Brattleboro's economic development runneth over

1900

~ The state population was 343,641, an increase of 3.4 percent. The population per square mile was 37.7, as compared with the national average of 25.6.

~ Rutland was the largest county with 44,209 persons.

~ Burlington was the largest city or town with 18,640 persons.

~ David Foster and Kittredge Haskins were elected to Congress.

~ There were a total of 33,104 farms occupying 4,724,440 acres of land. The average value of land per acre was $9.70. The average value per farm was $3,276. There were 22,982 farm owners with the average size of a Vermont farm being 142.7 acres. 16,700 of those farms were primarily dairy farms. Vermont ranked 5th in the nation in the number of dairy farms. Total value of farm products was $33,570,892, with the gross farm income being $22,658,908. Windsor and Addison county had the most farms.

~ There were 199,603 dairy cows in the state, an average 12 cows per farm. The value of dairy products was $9,321,389 and the value of livestock was $9,321,389 (ranked 1st in New England). 142,042,223 gallons of milk were produced with 57,506,012 gallons sold, 41,288,087 lbs of butter produced (1st in New England), and 5,119,764 lbs of cheese produced (1st in New England).

~ There were 297,521 sheep in the state producing 1,334,253 lbs of wool.

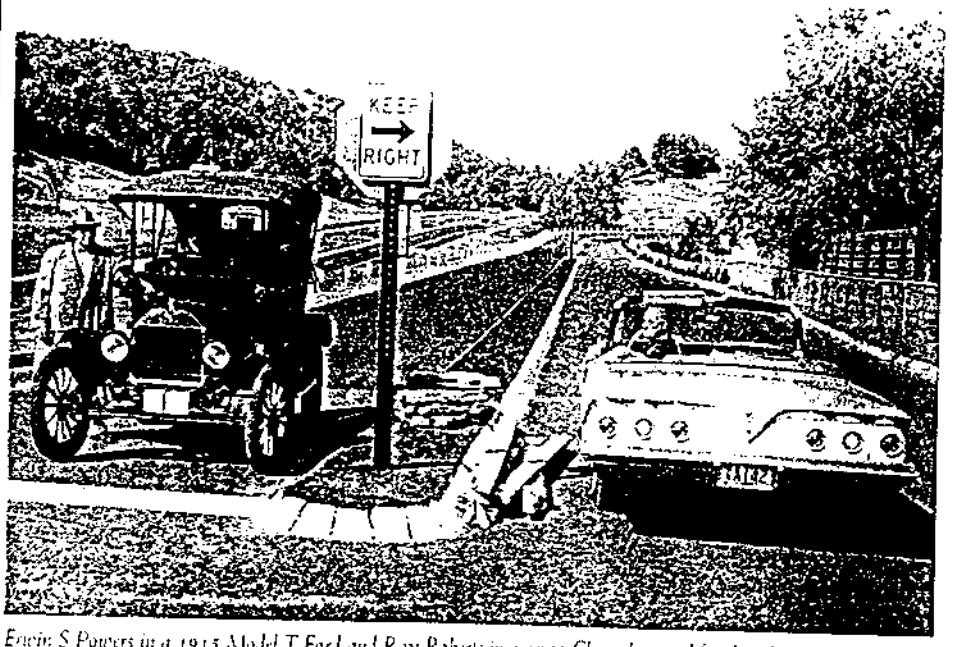
~ There were 806,451 chickens producing 6,271,880 dozen eggs.

~ Some major crops included 2,322,450 bushels of corn (8th in US), 2,742,140 bushels of oats (ranks 5th), 3,547,829 bushels of potatoes (9th in US), and 1,329,972 tons of hay.

~ 4,770,870 lbs maple sugar produced and 409,953 gallons of maple syrup. There were 1,675,131 apple trees producing 1,176,822 bushels valued at $450,429.

~ There were 1,938 manufacturing establishments in the state, employing 28,179 people. The gross value of products produced was $57,623,815 with $43,500,000 of capital invested. Lumber and timber products ranked first with 575 establishments, 6,322 employees, and a product value of $8,799,000. Other major industries include marble and stone work with 281 establishments employing 4,668 workers, and the dairy industry with 255 establishments employing 522 employees.

~ William Stickney, Republican, was elected governor.



Erwin S Powers in a 1915 Model T Ford and Ray Roberts in a 1960 Chevrolet posed for this photo at Exit 2 of Interstate 91 in Brattleboro to celebrate the opening of the first leg of the interstate. The photo ran in the Brattleboro Reformer in 1960.

Photo Courtesy of The Brattleboro Historical Society

By Wayne Carhart

Brattleboro's plentiful and high-quality water supply was not the foresight of early tax-paid city planners, but the vision of a local businessman and the back-breaking work of many laborers.

WATER FOR DRINKING

In the late 19th century, as towns grew because of the industrial revolution, the demand for potable (suitable for drinking) water grew as well. Sewage "treatment" was addressed by the use of outhouses or, in the case of dwellings, with indoor plumbing, discharged into the nearest stream or river.

Such practices greatly restricted the supply of potable water for a community. Drinking water had to come from springs or waterways that were not serving as sewers. Spring-fed cisterns, connected to each other by wooden and lead pipes which then fed homes and businesses, were developed and operated by private individuals who charged a fee for the water they provided.

WATER FOR FIRE FIGHTING

A large water supply, with adequate pressure, was needed in fire fighting, which was a major incentive to develop these cistern systems. Firefighters could connect a pumping machine to the cisterns, which stored a large quantity of water, and through the use of fire hoses fight a fire. Downtown Brattleboro suffered a devastating fire in 1869 and another in 1877 that no doubt heightened the business owners' and citizens' concern for adequate fire protection. The Estey Organ Company, after suffering major fires, developed such a system and maintained their own fire fighting equipment.

A CIVIC MINDED BUSINESSMAN

In 1866, George Crowell, age 32, moved to Brattleboro from Massachusetts to work on the editorial staff of the Vermont Record and Farmer, published

See Water, p 38 →

← Water, from p.36

by Daniel L. Milliken. A year later Crowell started and served as publisher of the highly successful women's weekly paper The Household, headquartered in the Crosby Block on Main Street. The paper, a forerunner of other women's magazines of the period, had 80,000 subscribers in 1890.

In addition to his publishing activities, Crowell became active in other businesses, including real estate. But it was his interest in the growing needs of the community and another enterprise that got his name in the paper — the town of Brattleboro's water supply and distribution system.

Crowell had acquired considerable real estate holdings and, like his fellow businessmen, was concerned with fire protection and a supply of potable domestic water. About 1880, he started to develop a spring-fed water distribution system to serve his apartments in the Forest Park area of town.

In 1882, he purchased a partially completed reservoir, started by Isaac Hines, four springs, and land from Isaac's son, Alonzo. Isaac Hines died before the project was operational. In addition to developing the reservoir and aqueduct, Crowell developed a park around the area and renamed it Chestnut Hill, because of the large number of chestnut trees in the area.

The 30-acre park and reservoir was on a plateau at a higher elevation than the town. This provided an increase in water pressure for the water system, and gave park visitors a commanding view of the town and surrounding area. Roads were built that enabled the public to visit croquet grounds, a newly built log cabin, a bandstand, and a three-story cottage of Swiss architecture that had a 50-foot observatory tower. Open to the public, his privately developed park was beauti-

~ President McKinley appointed a commission to organize civil government in the newly acquired Philippine Islands. Mason Stone was appointed Education Commissioner. Henry Ide from St Johnsbury was a member of this commission and was later made Secretary of Finance and Justice for the Philippine Islands. He was made the governor general of the Philippines in 1906.

~ A law was enacted that all towns of 2,500 persons or more must maintain a high school or maintain instruction for its students in one.

~ A state laboratory of hygiene was created under the direction of the state Board of Health.

~ A border was established between Vermont and Massachusetts.

~ William Dillingham was elected to take the seat once held by Senator Justin Morrill.

~ President McKinley won again in Vermont by a large majority.

1901

~ Governor Stickney declared the week of August 16 "Old Home Week" in Vermont. He invited all those who once lived in Vermont or had relatives here to return home to visit. More than 150 come from Boston alone to visit.

~ Vice President Teddy Roosevelt visited Vermont. A reception held at the Van Ness house in Burlington had at least 3,000 persons waiting to meet Roosevelt. Roosevelt had been asked to speak at the meeting of the Vermont Fish and Game League at the home of former Lt. Governor Nelson Fisk on Isle LaMotte. While at Fisk's house, Roosevelt learned that President McKinley was assassinated in Buffalo, NY.

1902

~ John McCullough, Republican, was elected governor. He was the first Republican governor not to win an outright majority.

~ President Roosevelt appointed Charles Darling of Bennington as assistant secretary of the Navy, a post that Roosevelt himself once held. Darling was responsible for granting Commander Peary a three years leave of absence to search for the North Pole. A peninsula discovered by Peary was later given Darling's name.

~ Local-option law passed, allowing towns to legalize the sale of liquor. Seven classes of license existed under the law based on type of alcohol to be sold and on the establishment. A prohibition on the sale and manufacture of alcohol had been in effect since 1853.

~ Operation of motor vehicles was restricted by law. There were no speed limits.

1903

~ The office of commissioner of state taxes was

created. He was authorized to appraise certain properties for tax purposes. The state Board of Health was established.

~ Senator Dillingham was re-elected.

1904

~ Charles Bell, Republican, was elected governor.

~ St. Michael's College in Winooski was founded.

~ 44 more towns voted to license the sale of liquor, 94 had voted in favor in the previous year.

~ Senator Proctor was re-elected.

~ The General Assembly passed a law that one member of the state Board of Agriculture was to be appointed as Forestry Commissioner. A Fish and Game commissioner was also appointed. A non-resident deer hunting licenses costs $15.

~ Office of Attorney General was established as an elected position with a salary of $2,500 per year.

~ Provision was made by legislative act for the inspection of foods and drugs.

~ Child labor in mills, factories, and work shops was made illegal in the state.

1905

~ Dedication of Ethan Allen Memorial Tower located in Ethan Allen Park in Burlington.

~ Montpelier celebrated 100 years of being the state capital.

~ The 450-foot-long battleship Vermont was launched, one of the five 16,000-ton warships built at a cost of $7,500,000 each by the Fore River Shipbuilding Co. of Quincy, MA. The ship took 801 crew. A silver tea service bought by the state for the battleship was presented to the commander during the christening.

~ Governor Bell was asked to prevent the execution of a Mrs Mary Rogers of Bennington, convicted of murder, on the grounds that she was a woman. He declined and she was executed several days later.

1906

~ Fletcher Proctor, Republican, was elected governor. He was the oldest son of Redfield Proctor, the US senator and former governor.

~ The first state tree nursery was established.

~ Women were made eligible to the elected offices of town clerk, treasurer, trustee of a public library, or town superintendent of schools. Though they could vote in school elections, they still couldn't vote in statewide elections.

~ The courts were reorganized. A state Supreme Court was kept with a chief justice and three

fully landscaped and attracted much attention. It was promoted by a pamphlet in the Victorian style:

"A walk up High Street to the wood-crowned heights conspicuously seen from every part of the village brings one in a short time to Highland Park, an enclosure of 30 acres in the heart of town, and a place of charming views and rural sights. These are private grounds owned by Mr George E Crowell, the editor and proprietor of the Household, which he fitted up and thrown open to the public. The enterprise is purely one of public spirit, and the park is open to all those who do not abuse its privileges. The only stated restriction is the shooting of birds and squirrels. The hill is a most charming place and offers great opportunities for development to a man like Mr Crowell, who only seems anxious to devote the wealth which he has won after a hard struggle to the upbuilding and beautifying of his town."

"At the time, the country was much more accustomed to letting private enterprise solve municipal problems."

On November 7, 1888, two fire hydrants were installed, at the expense of a local businessman, George J Brooks. These hydrants were connected to the newly built Chestnut Hill Reservoir and improved fire-fighting capacity, by providing a large quantity of water, under pressure, to the downtown area.

A PUBLICLY SUPPORTED WATER SYSTEM

Clearly, the Chestnut Hill Reservoir, with its 5,000,000-gallon capacity, improved the water system of Brattleboro considerably. Interestingly, until the early 1890s the municipal water supply was undertaken entirely by private enterprise. In 1892, the town of Brattleboro sought a charter from the state of Vermont to authorize it to develop a municipal water system; however, even having obtained such authority, Brattleboro continued to rely on George Crowell's system.

The Chestnut Hill Reservoir, supplied by springs in the immediate area, was eventually unable to keep pace with the increasing demand for water. An additional source of water was needed. To this aim, Crowell devised a plan to pump water from the nearby West River into the reservoir. By installing a steam-powered pump near the West River, water was pumped through a six-inch main into the reservoir. Crowell's plan awakened the debate: Should the town of Brattleboro build its own municipal water system?

On December 20, 1892, a special committee of five was appointed to study the issue of the town's water supply. The committee's recommendation was to accept Crowell's plan and continue to use the privately operated Crowell system.

associate judges and a state superior court with six judges.

~ The highway system was revised and $50,000 was set aside for improvements.

~ The Legislature directed companies to pay their employees weekly.

1908

~ George Prouty, Republican, was elected governor.

~ David Foster and Frank Plumley were elected to Congress.

~ Senator Redfield Proctor died at the age of 76 from pneumonia. His son, Fletcher Proctor, the governor, appointed John Stewart of Middlebury to fill the rest of Redfield Proctor's term in the Senate.

~ The state expenditures were $2,094,228.37. The revenue was $2,207,356.99.

1909

~ President Taft visited the state during the Tercentenary celebration of Lake Champlain's discovery. 40-60,000 people gather in Burlington on July 8 to celebrate and meet the president, who arrived on the steamer Ticonderoga.

~ Senator Dillingham was re-elected, while former Governor Carroll Page took Proctor's seat in the Senate.

Work began on the West River Pumping Station and six-inch pipe line. The system became operational August 4, 1893.

WATER USE INCREASES

Crowell knew it was only a matter of time before the Chestnut Hill Reservoir, even with its West River Pumping Station, would not be able to keep up with Brattleboro's growing demand for water. He continued to buy land and water rights. His plan was to use Sunset Lake and combine it with Stickney Brook and collect the water in a large reservoir to be constructed at Pleasant Valley.

These bodies of water were at a higher elevation than the Chestnut Hill Reservoir and were located northwest of the town of Brattleboro. The water would be distributed to Brattleboro through a system of water mains.

Again, the issue of the town of Brattleboro developing its own municipal system was revisited. On August 1, 1905, Crowell was prepared to sell the Chestnut Hill Reservoir system and the water rights of Sunset Lake and Stickney Brook to the town for about $200,000. Again, Brattleboro chose not to build its own system or buy Crowell's. It chose to continue using Crowell's privately managed system.

Crowell began work on the Sunset Lake and Pleasant Valley system in November 1905. The headline in the local paper read, "Brattleboro's New Water Supply Abundance of Water Adequate for All Domestic, Fire, Elevator, and Light Manufacturing Purposes. (Elevators at the time used water as a counterbalance to raise the elevator car. To lower the car, water was drained from the counterbalance container.) Another headline proclaimed, "Village Water Supply to Be Greatly Increased by New System. Sunset Lake Water Company Will Develop the Stickney Brook Water Rights and Connect With Chestnut Hill Company's Main."

In 1906, the town again considered buying and running its own municipal water system, which brought citizens out in large numbers to discuss the merits of such a move. The main issue was the cost to the taxpayers. The town offered Crowell $250,000 for the Chestnut Hill System and the Sunset Lake System, but

by this time Crowell wanted $345,000 and rejected the town's offer.

For years, Crowell's water system had met most of the town's needs. Fortunately, he had the foresight to expand the system and could so as a private company a lot easier than a town could. At the time, the country was much more accustomed to letting private enterprise solve municipal problems. Remember, this was long before the Great Depression, when the country started to question its reliance on private enterprise to solve its problems and started to use publicly supported projects for its municipal needs.

CROWELL DIES

On October 20, 1916, George Crowell died at age 82. Earlier in the century, George Crowell had offered the park at Chestnut Hill to the town of Brattleboro. The offer was rejected because the town feared that the cost of its upkeep would be too big a tax burden. And after Crowell's death the park fell into disrepair and all the many "special" features of its heyday rotted away. Eventually, Crowell's son, Christie, formed a real estate company with other businessmen and sold off the park as building lots.

It was not until 1925 that the town bought the Brattleboro Water Works company and reservoir for $550,000. Since that time, there have been many improvements, the most recent of which is a water-filtration system, but Brattleboro's relationship with its water system is still much related to the cost of the system's operation.

Plans for expansion are now the responsibility of publicly paid civil servants who, fortunately, take their responsibility seriously. Private enterprise's involvement is limited to consulting and construction contacts. Now the system is totally owned and operated by the town of Brattleboro, but George Crowell is remembered as a man of vision who gave Brattleboro water.

Wayne Carhart is president of the Brattleboro Historical Society, Inc. ■

Estey Organ: A Vermont legacy

By The Brattleboro Historical Society

"For generations, the name of Estey was, and perhaps in some places still is, literally a household word," writes a business history magazine. "Estey reed organs were found in homes and churches in the Americas, Europe, and even Asia and Africa. Near the end of the last century, the Estey Organ Company (founded in 1846) was reputed to be the largest manufacturing establishment of its kind."

There are many instruments in the reed organ family, including the modern harmonica and accordion. The melodeon and harmonium were early versions of the reed organ, and the late 19th century instrument was also called a pump organ or a parlor organ.

In the days before radio, record players, or television, home music-making was more popular and important than it is today. At the same time inventions and changing technology improved the reed organ in the mid-1800s, Americans had more money to spend on home entertainment. The reed organ was cheaper, lighter, and easier to keep in tune than a piano, so it was the obvious choice for the musically minded, middle-class family.

The so-called Victorian era was the heyday of the reed organ. There were hundreds of manufacturers in the United States and thousands of organs were made and sold. Organs were advertised in magazines and sold door-to-door. Sears and Roebuck carried them in its catalog. Case styles could be varied to suit changing tastes.

With its efficient factory, well-made product, and extensive advertising and dealer network, the Estey company was one of the largest reed organ manufacturers in the world. From 1880 to 1900, Estey made an average of 10,000 instruments per year. The company exhibited at Worlds Fairs and marketed internationally.

The founder of the Estey Organ Company, Jacob Estey, was born in Hinsdale, NH, in 1814. By 1835 he had moved to Brattleboro and owned a plumbing supply business. His enterprises soon expanded to include a lumber company and one selling marble and slate products.

Instruments associated with Estey in the 1850s and 1860s are labeled "Estey & Green" or "J Estey & Co." Around 1870, Jacob took his son Julius and son-in-law Levi Fuller into partnership and the name "Estey Organ Company" was born.

The Estey family was civic-minded and active outside of manufacturing. Jacob served in the Vermont Legislature, as did Julius, and Levi Fuller became governor of Vermont. Levi was also a notable inventor, with many patents to his name. The family sponsored two national guard companies, donated to the Baptist church, and served on the local bank board.

Estey's market niche was the reed organ, in which it ranked at the top in both quality and quantity. But reed organs began losing market share to pianos in the 1890s. Estey had established a piano company in New York City in 1885 and in 1901 produced its first pipe organ. (Some 3,000 pipe organs were eventually made by the company, mostly installed in churches.) But Estey was not the leader in either of these fields.

Jacob died in 1890 and his descendants continued to run the Estey Organ Company for another 60 years, with a few brief periods of outside ownership. The company closed down in Brattleboro in the late 1950s. Some Estey great-great-grandchildren still live in the area.

Of the half-a-million reed organs made by Estey, many still exist in homes and churches. They say "Brattleboro Vermont" above the keyboard.

After fires and floods had damaged or destroyed several earlier factories downtown, the company moved it operations in 1870 to a terrace above the Whetstone Brook. There it constructed a row of three-story, 100-foot long, slate-sided factory buildings. Over the years more buildings were added. Old maps show a lumber yard, gas house, boiler, engine room, machine shop, blacksmith shop, shipping and packing building, horse shed, tramway, dynamo, and reservoir. Up to 700 workers were employed at one time, the largest employer in Brattleboro in its day.

More than half the buildings still exist, and the complex was listed on the National Register of Historic Places in 1980. It is now home to carpentry shops, artists, book publishers, a church, and a furniture warehouse.

Brattleboro Historical Society, PO Box 6392, Brattleboro, VT 05302. ■

APPENDIX B

Environmental Compliance Services, Inc. 157 Old Guilford Rd. ,#6,Brattleboro, Vermont 05301	SOIL BORING and MONITORING WELL INSTALLATION LOG	BORING NO.:	SB-1		
		DOCUMENT NO.:	f:\data\projects\40189.30\sb-Boring Logs 1291999		
		SHEET	1	OF	2

LOCATION

BORING COMPAN	Environmental Compliance Services, Inc.	JOB NUMBER:	40189.30
BORING COMPANY ADDRESS:	588 Silver Street, Agawam, Massachusetts	PROJECT NAME:	Clapp Property
FOREMAN:	S. Werbicki	PROJECT ADDRESS:	176 Main Street
ECS INSPECTOR:	L. Gilmore, B. Tease	CLIENT NAME:	Robert Clapp

GROUNDWATER OBSERVATIONS				CASING	SAMPLER	CORE BARREL
Date	Depth	Stabilization Time	TYPE	Hollow Stem Auger	Split Spoon	
			INSIDE DIAMETER	4.25"	1 3/8"	
			HAMMER WEIGHT		140 lbs	
			HAMMER FALL		30"	
			NOTES:			

Casing Elevation (ft.)	
PVC Elevation (ft.)	
Surface Elevation (ft.)	
Date Started	12/9/99
Date Completed	12/9/99

Depth	Sample Number	Sample Depths	Penetration/ Recovery	Blows per 6" penetration	Strata Changes	Soil Descriptions	Well As Built	Field Testing [1]	Notes
0		0 - 2				No Sample			
5	S-1	5 - 7	24/8"	3/4/4/7	f. SAND	brown f. SAND		4.0	2
10	S-2	10 - 12		18/48				0.5	
15	S-3	15 - 17	24/20"	12/9/10/15	SILT	yellow-brown SILT		0.3	2
20	S-4	20 - 22	24/10"	9/12/14/13	f. SAND and SILT	grey SILT and f. SAND		18	2
25	S-5	25 - 27	24/18"	9/17/18/25	f. SAND	f. SAND		0.8	
30	S-6	30 - 32		11/13/18/18		f. SAND		1.5	
35		35-37							

1. Field testing values represent total volatile organic vapors (referenced to a benzene standard) measured in the headspace of sealed soil sample jars or Zip-lock ™ bags, with a Photovac Model 2020 photoionization detector (PID). Results reported in parts per million by volume (ppmv). Detection limit calibrated to 0.2 ppmv.

2. Odors detected in S-1, S-3, S-4

3. Groundwater table encountered at approximately 65' bgs.

4. 2" diameter PVC groundwater monitoring well installed at 75' bgs consisting of 10' slotted (0.010) screen and 65' solid riser. Backfilled with graded sand (#2) 75-63', bentonite 63-61' graded sand (#2) 61-27', bentonite 27-25', natural fill to 1'. Water tight curb box cemented flush to grade. (ECS-2)

Environmental Compliance Services, Inc.
157 Old Guilford Rd. ,#6,Brattleboro, Vermont 05301

SOIL BORING and MONITORING WELL INSTALLATION LOG

BORING NO.:	SB-1		
DOCUMENT NO.:	f:\data\projects\40189.30\cts\Boring Logs\291999		
SHEET	2	OF	2
LOCATION			

BORING COMPAN	Environmental Compliance Services, Inc.	JOB NUMBER:	40189.30
BORING COMPANY	588 Silver Street, Agawam, Massachusetts	PROJECT NAME:	Clapp Property
FOREMAN:	S. Werbicki	PROJECT ADDRESS:	176 Main Street
ECS INSPECTOR:	L. Gilmore, B. Tease	CLIENT NAME:	Robert Clapp

GROUNDWATER OBSERVATIONS				CASING	SAMPLER	CORE BARREL		
Date	Depth	Stabilization Time	TYPE	Hollow Stem Auger	Split Spoon		Casing Elevation (ft.)	
			INSIDE DIAMETER	4.25"	1 3/8"		PVC Elevation (ft.)	
			HAMMER WEIGHT		140 lbs		Surface Elevation (ft.)	
			HAMMER FALL		30"		Date Started	12/9/99
			NOTES:				Date Completed	12/9/99

Depth	Sample Number	Sample Depths	Penetration/ Recovery	Blows per 6" penetration	Strata Changes	Soil Descriptions	Well As Built	Field Testing [1]	Notes
40		40 - 42				No Sample			
45		45 - 47				No Sample			
50		50 - 52				No Sample			
55		55 - 57				No Sample			
60	S-7	60 - 62	24/20"	16/18/22/22	m.-c. SAND	red-brown m.-c. SAND; dry		0.7	
65	S-8	65 - 67	24/18"	15/13/13/19	f.-c. SAND	brown f.-c. SAND (80% c. SAND); wet		0.2	3
70	S-9	70 - 72	24/20"	12/20/20/26	c. SAND	brown c. SAND; wet		0.1	
75					75' End of Boring				4

1. Field testing values represent total volatile organic vapors (referenced to a benzene standard) measured in the headspace of sealed soil sample jars or Zip-lock ™ bags, with a Photovac Model 2020 photoionization detector (PID). Results reported in parts per million by volume (ppmv). Detection limit calibrated to 0.2 ppmv.
2. Odors detected in S-1, S-3, S-4
3. Groundwater table encountered at approximately 65' bgs.
4. 2" diameter PVC groundwater monitoring well installed at 75' bgs consisting of 10' slotted (0.010) screen and 65' solid riser. Backfilled with graded sand (#2) 75-63', bentonite 63-61' graded sand (#2) 61-27', bentonite 27-25', natural fill to 1'. Water tight curb box cemented flush to grade. (ECS-2)

Environmental Compliance Services, Inc.
157 Old Guilford Rd. ,#6,Brattleboro, Vermont 05301

SOIL BORING and MONITORING WELL INSTALLATION LOG

BORING NO.:	SB-2
DOCUMENT NO.:	I:\data\projects\40189.30\xls\Boring Log 12/9/99
SHEET	1 OF 1

LOCATION

BORING COMPAN	Environmental Compliance Services, Inc.	JOB NUMBER:	40189.30
BORING COMPANY	586 Silver Street, Agawam, Massachusetts	PROJECT NAME:	Clapp Property
FOREMAN:	S. Werbicki	PROJECT ADDRESS:	176 Main Street
ECS INSPECTOR:	L. Gilmore, B. Tease	CLIENT NAME:	Robert Clapp

GROUNDWATER OBSERVATIONS				CASING	SAMPLER	CORE BARREL
Date	Depth	Stabilization Time	TYPE	Hollow Stem Auger	Split Spoon	
			INSIDE DIAMETER	4.25"	1 3/8"	
			HAMMER WEIGHT		140 lbs	
			HAMMER FALL		30"	
			NOTES:			

Casing Elevation (ft.)	
PVC Elevation (ft.)	
Surface Elevation (ft.)	
Date Started	12/9/99
Date Completed	12/9/99

Depth	Sample Number	Sample Depths	Penetration/ Recovery	Blows per 6" penetration	Strata Changes	Soil Descriptions	Well As Built	Field Testing [1]	Notes
0		0 - 2				No Sample			
5	S-1	5 - 7	24/24"	2/5/6/11	f.-m. SAND and SILT	brown f.-m. SAND and SILT; dry		BDL	
10	S-2	10 - 12	24/12"	7/4/5/18	f.-c. SAND	brown f.-c. SAND; dry		BDL	
15	S-3	15 - 17	24/24"	10/13/13/10	SILT	brown SILT; dry		0.3	
20	S-4	20 - 22	24/24"	10/11/13/15		brown SILT; dry		12.4	
25	S-5	25 - 27	24/24"	5/8/9/5		brown SILT; dry		60.4	
30	S-6	30 - 32	24/22	10/12/20/20	f. SAND	brown f. SAND; dry		7.8	
					32' End of Boring				
35		35-37							

1. Field testing values represent total volatile organic vapors (referenced to a benzene standard) measured in the headspace of sealed soil sample jars or Zip-lock ™ bags, with a Photovac Model 2020 photoionization detector (PID). Results reported in parts per million by volume (ppmv). Detection limit calibrated to 0.2 ppmv.

Environmental Compliance Services, Inc. 157 Old Guilford Rd. ,#6,Brattleboro, Vermont 05301	SOIL BORING and MONITORING WELL INSTALLATION LOG		BORING NO.:	SB-3	
			DOCUMENT NO.:	f:\data\projects\40189.30\xls\Boring Logs\129999	
			SHEET	1 OF 2	

LOCATION

BORING COMPAN	Environmental Compliance Services, Inc.	JOB NUMBER:	40189.30
BORING COMPANY	588 Silver Street, Agawam, Massachusetts	PROJECT NAME:	Clapp Property
FOREMAN:	S. Werbicki	PROJECT ADDRESS:	176 Main Street
ECS INSPECTOR:	L. Gilmore, B. Tease	CLIENT NAME:	Robert Clapp

GROUNDWATER OBSERVATIONS				CASING	SAMPLER	CORE BARREL
Date	Depth	Stabilization Time	TYPE	Hollow Stem Auger	Split Spoon	
			INSIDE DIAMETER	4.25"	1 3/8"	
			HAMMER WEIGHT		140 lbs	
			HAMMER FALL		30"	
			NOTES:			

Casing Elevation (ft.)	
PVC Elevation (ft.)	
Surface Elevation (ft.)	
Date Started	12/9/99
Date Completed	12/9/99

Depth	Sample Number	Sample Depths	Penetration/ Recovery	Blows per 6" penetration	Strata Changes	Soil Descriptions	Well As Built	Field Testing [1]	Notes
0		0 - 2				No Sample			
5	S-1	5 - 7	24/22"	5/6/15/25	f.-m SAND	brown f.-m. SAND; dry		BDL	
10	S-2	10 - 12	24/12"	16/13/13/13	f.-c. SAND and SILT	brown f.-c. SAND (6") and SILT (6"); dry		0.4	
15	S-3	15 - 17	24/24"	10/11/16/18	f. SAND and SILT	brown f. SAND and SILT; dry		1.2	
20	S-4	20 - 22	24/16"	12/12/10/12	f. SAND	brown f. SAND; dry		0.2	
25	S-5	25 - 27				No Sample			
30	S-6	30 - 32				No Sample			
35		35-37				No Sample			

1. Field testing values represent total volatile organic vapors (referenced to a benzene standard) measured in the headspace of sealed soil sample jars or Zip-lock ™ bags, with a Photovac Model 2020 photoionization detector (PID). Results reported in parts per million by volume (ppmv). Detection limit calibrated to 0.2 ppmv.

Environmental Compliance Services, Inc. 157 Old Guilford Rd. ,#6,Brattleboro, Vermont 05301	SOIL BORING and MONITORING WELL INSTALLATION LOG	BORING NO.:	SB-3		
		DOCUMENT NO.:	I:\data projects\40189.30\xls\Boring Logs\121999		
		SHEET	2	OF	2
		LOCATION			

BORING COMPAN	Environmental Compliance Services, Inc.	JOB NUMBER:	40189.30
BORING COMPANY	588 Silver Street, Agawam, Massachusetts	PROJECT NAME:	Clapp Property
FOREMAN:	S. Werbicki	PROJECT ADDRESS:	176 Main Street
ECS INSPECTOR:	L. Gilmore, B. Tease	CLIENT NAME:	Robert Clapp

GROUNDWATER OBSERVATIONS				CASING	SAMPLER	CORE BARREL
Date	Depth	Stabilization Time	TYPE	Hollow Stem Auger	Split Spoon	
			INSIDE DIAMETER	4.25"	1 3/8"	
			HAMMER WEIGHT		140 lbs	
			HAMMER FALL		30"	
			NOTES:			

Casing Elevation (ft.)	
PVC Elevation (ft.)	
Surface Elevation (ft.)	
Date Started	12/9/99
Date Completed	12/9/99

Depth	Sample Number	Sample Depths	Penetration/ Recovery	Blows per 6" penetration	Strata Changes	Soil Descriptions	Well As Built	Field Testing [1]	Notes
40		40 - 42				No Sample			
45		45 - 47				No Sample			
50		50 - 52				No Sample			
55		55 - 57				No Sample			
60		60 - 62				No Sample			
65	S-7	65 - 67	24/16"	19/21/20/16	c. SAND	brown c. SAND, trace Silt; wet		BDL	2
70	S-8	70 - 72		22/25/27/29		brown c. SAND, some Silt; wet		0.2	
					72' End of Boring				3
75									

1. Field testing values represent total volatile organic vapors (referenced to a benzene standard) measured in the headspace of sealed soil sample jars or Zip-lock ™ bags, with a Photovac Model 2020 photoionization detector (PID). Results reported in parts per million by volume (ppmv). Detection limit calibrated to 0.2 ppmv.

2. Groundwater table encountered at approximately 65' bgs.

3. 2" diameter PVC groundwater monitoring well installed at 72' bgs consisting of 10' slotted (0.010) screen and 62' solid riser. Backfilled with graded sand (#2) 72-60', bentonite 60-59' graded sand (#2) 61-27', bentonite 27-25', natural fill to 1'. Water tight curb box cemented flush to grade. (ECS-3)

Environmental Compliance Services, Inc.
157 Old Guilford Rd. ,#6,Brattleboro, Vermont 05301

SOIL BORING and MONITORING WELL INSTALLATION LOG

BORING NO.:	SB-4
DOCUMENT NO :	I:\data\projects\40189.30\s's Boring Logs\129999
SHEET	1 OF 1

LOCATION

BORING COMPAN	Environmental Compliance Services, Inc.	JOB NUMBER:	40189.30
BORING COMPANY	588 Silver Street, Agawam, Massachusetts	PROJECT NAME:	Clapp Property
FOREMAN:	S. Werbicki	PROJECT ADDRESS:	176 Main Street
ECS INSPECTOR:	L. Gilmore, B. Tease	CLIENT NAME:	Robert Clapp

GROUNDWATER OBSERVATIONS				CASING	SAMPLER	CORE BARREL
Date	Depth	Stabilization Time	TYPE	Hollow Stem Auger	Split Spoon	
			INSIDE DIAMETER	4.25"	1 3/8"	
			HAMMER WEIGHT		140 lbs	
			HAMMER FALL		30"	
			NOTES:			

Casing Elevation (ft.)	
PVC Elevation (ft.)	
Surface Elevation (ft.)	
Date Started	12/9/99
Date Completed	12/9/99

Depth	Sample Number	Sample Depths	Penetration/ Recovery	Blows per 6" penetration	Strata Changes	Soil Descriptions	Well As Built	Field Testing [1]	Notes
0		0 - 2				No Sample			
5	S-1	5 - 7	24/20"	5/5/5/5	f. SAND and SILT	brown f. SAND and SILT; dry		BDL	
10	S-2	10 - 12	24/18"	7/7/10/10	m.-c. SAND	brown m.-c. SAND; dry		0.6	
15	S-3	15 - 17	10/1"	35/50 for 4"	COBBLE	brown COBBLE; dry		BDL	
20	S-4	20 - 22	24/24"	6/7/9/9	SILT	brown SILT; dry		0.1	
25	S-5	25 - 27	24/22"	8/8/5/7		brown SILT; dry		2000	
30	S-6	30 - 32	24/24	8/7/6/6		brown SILT; dry		2000	
					32' End of Boring				

1. Field testing values represent total volatile organic vapors (referenced to a benzene standard) measured in the headspace of sealed soil sample jars or Zip-lock ™ bags, with a Photovac Model 2020 photoionization detector (PID). Results reported in parts per million by volume (ppmv). Detection limit calibrated to 0.2 ppmv.

Environmental Compliance Services, Inc.
157 Old Guilford Rd. ,#6,Brattleboro, Vermont 05301

SOIL BORING and MONITORING WELL INSTALLATION LOG

BORING NO.:	SB-5
DOCUMENT NO.:	f:\data\projects\40189.30\sb\Boring Logs\12919999
SHEET	1 OF 1

LOCATION

See Site Plan

BORING COMPAN	Environmental Compliance Services, Inc.	JOB NUMBER:	40189.30
BORING COMPANY	588 Silver Street, Agawam, Massachusetts	PROJECT NAME:	Clapp Property
FOREMAN:	D. Cardinale	PROJECT ADDRESS:	176 Main Street
ECS INSPECTOR:	L. Gilmore	CLIENT NAME:	Robert Clapp

GROUNDWATER OBSERVATIONS				CASING	SAMPLER	CORE BARREL
Date	Depth	Stabilization Time	TYPE		Soil Gas Rod	
			INSIDE DIAMETER			
			HAMMER WEIGHT			
			HAMMER FALL			
			NOTES:			

Casing Elevation (ft.)	
PVC Elevation (ft.)	
Surface Elevation (ft.)	
Date Started	12/9/99
Date Completed	12/9/99

Depth	Sample Number	Sample Depths	Penetration/ Recovery	Blows per 6" penetration	Strata Changes	Soil Descriptions	Well As Built	Field Testing [1]	Notes
0		0							
	SGS S-1	2						70.8	
	SGS S-2							108	
		4							
5									
		6							
		8							
	SGS S-3							17.5	
10		10							
15									
20									
25									
30									
35									

1. Field testing values represent total volatile organic vapors (referenced to a benzene standard) measured in sealed Tedlar™ bags, with a Photovac Model 2020 photoionization detector (PID). Results reported in parts per million by volume (ppmv). Detection limit calibrated to 0.2 ppmv.

Environmental Compliance Services, Inc.
157 Old Guilford Road # 6, Brattleboro, Vermont 05301
(802) 257-1195 FAX (802) 257-1603

GROUNDWATER SAMPLING LOG

Client: Robert Clapp
Location: 176 Main Street, Brattleboro, VT
Personnel: J. Prior
Job Number: 40189.3
Date: 12/14/99
Weather Conditions: cloudy, 30s
Sheet 1 of 1

Well ID	D (in.)	Point of Reference (PVC/Rim)	Total Depth (feet)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Water Height (feet)	Standing Volume (gallons)	Volume Purged (gallons)	Odors (Y/N)				Time Sampled	Comments
ECS-2	2	PVC	77.50	-----	67.26	-----	10.24	1.67	4.75	N					silty
ECS-3	2	PVC	77.50	-----	65.79	-----	11.71	1.91	5.50	N					silty

Field Instrumentation	Manufacturer/Model	I.D. Number	Calibration	Notes
Water Level Indicator	Slope	#7		
Disposable Plastic Bailers				

Standing Volume (gallons) = $\pi r^2(H)(7.48/1.44)$
Where: r = inside radius of well (inches)
H = standing height of water (feet)

APPENDIX C

RECEIVED DEC 3 0 1999

SPECTRUM ANALYTICAL, INC.

Massachusetts Certification # M-MA138
Rhode Island # 98 Maine # MA138
Florida # E87600 / 87562
New Hampshire # 2538
Connecticut # PH-0777
New York # 11393

12/23/99

ECS, Inc.
157 Old Guilford Road, #6
Brattleboro, VT 05301

Attn: Bruce Tease

Client Project Number: 40189.30 **Location:** 176 Main St.- Brattleboro, VT

Laboratory ID	Client Sample ID	Analyses Requested
AB67386	MW2-20	TPH by GC Ultrasonic Extraction % Solids

I attest that all information contained within this report has been reviewed for accuracy and checked against all quality control requirements outlined in each applicable method including any data obtained from a subcontract laboratory.

Authorized by:

Hanibal C. Tayeh
President/Laboratory Director

11 Almgren Drive • Agawam, Massachusetts 01001 • 413-789-9018 • FAX 413-789-4076

SPECTRUM ANALYTICAL, INC.

Laboratory Report

Location: 176 Main St.- Brattleboro, VT
Client: ECS
Lab ID No: AB67386
Client Id: MW2-20

Client Project No: 40189.30
Submittal Date: 12/10/99
Collection Date: 12/9/99
Matrix: Soil

Parameter	Results	Units	Reporting Limit	Start Date	End Date	Analyst	Method
TPH Preparation							
Ultrasonic Extraction	Completed			12/20/99	12/20/99	MB	SW846 3550B
Petrolem Hydrocarbon Analysis							
Aviation Fuel	Not detected	mg/Kg	50	12/22/99	12/22/99	LR	SW846 8100M
Fuel Oil #2	Not detected	mg/Kg	50	12/22/99	12/22/99	LR	SW846 8100M
Fuel Oil #4	Not detected	mg/Kg	50	12/22/99	12/22/99	LR	SW846 8100M
Fuel Oil #6	Not detected	mg/Kg	50	12/22/99	12/22/99	LR	SW846 8100M
Gasoline	Not detected	mg/Kg	50	12/22/99	12/22/99	LR	SW846 8100M
Ligroin	Not detected	mg/Kg	50	12/22/99	12/22/99	LR	SW846 8100M
Motor Oil	Not detected	mg/Kg	50	12/22/99	12/22/99	LR	SW846 8100M
Other Oil	Not detected	mg/Kg	50	12/22/99	12/22/99	LR	SW846 8100M
Total Hydrocarbons (GC)	Not detected	mg/Kg	50	12/22/99	12/22/99	LR	SW846 8100M
Unidentified	Not detected	mg/Kg	50	12/22/99	12/22/99	LR	SW846 8100M
1-Chloro-octadecane (%SR)	54	mg/Kg	0.	12/22/99	12/22/99	LR	SW846 8100M
% Solids	77.1	%		12/21/99	12/21/99	KS	SM2540G

Validated by:

12/23/99

President/Laboratory Director

Spectrum Analytical, Inc.
Laboratory Report Supplement

References

Methods for the Determination of Organic Compounds in Drinking Water. EPA-600/4-88/039. EMSL 1988.

Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. EMSL 1983.

Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater. EPA 600/4-82-057. EMSL 1982.

Test Methods for Evaluating Solid Waste. Physical/Chemical Methods. EPA SW-846. 1986.

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Oil Spill Identification System. U.S. Coast Guard CG-D-52-77. 1977.

Handbook for Analytical Quality Control in Water and Wastewater Laboratories. EPA 600/4-79-019. EMSL 1979.

Choosing Cost-Effective QA/QC (Quality Assurance/Quality Control) Programs for Chemical Analyses. EPA 600/4-85/056. EMSL 1985.

Report Notations

Not Detected, Not Det, ND or nd	=	*The compound was not detected at a concentration equal to or above the established method detection limit.*	
NC	=	*Not Calculated*	
MCL	=	*EPA Maximum Contamination Level*	
VOA	=	*Volatile Organic Analysis*	
BFB	=	*4-Bromofluorobenzene*	*(An EPA 624 Surrogate)*
p-DFB	=	*1,4-Difluorobenzene*	*(An EPA 624 Surrogate)*
CLB-d5	=	*Chlorobenzene-d5*	*(An EPA 624 Surrogate)*
BCP	=	*2-Bromo-1-chloropropane*	*(An EPA 601 Surrogate)*
TFT	=	*a,a,a-Trifluorotoluene*	*(An EPA 602 Surrogate)*
Decachlorobiphenyl	=	*(an EPA 608/8080 Surrogate)*	

Definitions

Surrogate Recovery = The recovery (expressed as a percent) of a non-method analyte (see surrogates listed above) added to the sample for the purpose of monitoring system performance.

Matrix Spike Recovery = The recovery (expressed as a percent) of method analytes added to the sample for the purpose of determining any effect of sample composition on analyte recovery.

Laboratory Replicate = Two sample aliquots taken in the analytical laboratory and analyzed separately with identical procedures. Analyses of laboratory duplicates give a measure of the precision associated with laboratory procedures, but not with sample collection, preservation, or storage procedures.

Field Duplicate = Two separate samples collected at the same time and place under identical circumstances and treated exactly the same throughout field and laboratory procedures. Analysis of Field duplicates give a measure of the precision associated with sample collection, preservation and storage, as well as with laboratory procedures.

Relative Percent Difference (% RPD) = The precision measurement obtained on duplicate/replicate analyses. %RPD is calculated as:

$$\%RPD = \frac{(value1 - value2)}{ave.\ value} * 100\%$$

SPECTRUM ANALYTICAL, INC.

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:
- ☑ Standard TAT - 7 to 10 business days
- ☐ Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval. Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: ECS-VT

Invoice To: ECS-Agawam

Project No.: 40189.30

Site Name: 176 Main St

Location: Brattleboro State: VT

Project Mgr.: Bruce Tease

P.O. No.: _____ RQN: _____

Sampler(s): B Tease

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
8=CH_3OH 9= $NaHSO_4$ 10= 4°C 11= _____

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	Preservative	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Analyses: MADEP VPH	Notes:
AB 23216	MW 2-20	12-9-99	11:00	G	SO	10		1			X	
AB												
AB												
AB												
AB												
AB												
AB												
AB												
AB												
AB												

Additional Instructions: _____

☑ Fax results when available to (802) 257-1603

Relinquished By:	Received By:	Date:	Time:
Bruce Tease	Ken Gillette	12/10/99	1020

11 Almgren Drive · Agawam, Massachusetts 01001 · 413-789-9018 · Fax 413-789-4076

SPECTRUM ANALYTICAL, INC.

Massachusetts Certification # M-MA138
Rhode Island # 98 Maine # MA138
Florida # E87600 / 87562
New Hampshire # 2538
Connecticut # PH-0777
New York # 11393

ECS, Inc.
157 Old Guilford Road, #6
Brattleboro, VT 05301

12/27/99

Attn: Bruce Tease

Client Project Number: 40176 **Location:** Clapp Property - BrattleboroVT

Laboratory ID	Client Sample ID	Analyses Requested
AB67439	SGS-2	Volatiles Screen GCMS
AB67440	SGS-95	Volatiles Screen GCMS

I attest that all information contained within this report has been reviewed for accuracy and checked against all quality control requirements outlined in each applicable method including any data obtained from a subcontract laboratory.

Authorized by:

Hanibal C. Tayeh
President/Laboratory Director

SPECTRUM ANALYTICAL, INC.

Laboratory Report

Location: Clapp Property - BrattleboroVT
Client: ECS
Lab ID No: AB67439
Client Id: SGS-2

Client Project No: 40176
Submittal Date: 12/10/99
Collection Date: 12/10/99
Matrix: Air

Parameter	Results	Units	Reporting Limit	Start Date	End Date	Analyst	Method
Volatile Organic Compounds							
1,2,4-Trimethylbenzene	Not detected	ppb	25	12/22/99	12/22/99	GW	VOC Screen
1,3,5-Trimethylbenzene	Not detected	ppb	25	12/22/99	12/22/99	GW	VOC Screen
Benzene	Not detected	ppb	25	12/22/99	12/22/99	GW	VOC Screen
Ethylbenzene	Not detected	ppb	25	12/22/99	12/22/99	GW	VOC Screen
m,p-Xylenes	Not detected	ppb	50	12/22/99	12/22/99	GW	VOC Screen
Methyl-t-butyl ether (MTBE)	Not detected	ppb	25	12/22/99	12/22/99	GW	VOC Screen
Naphthalene	Not detected	ppb	25	12/22/99	12/22/99	GW	VOC Screen
o-Xylene	Not detected	ppb	25	12/22/99	12/22/99	GW	VOC Screen
Toluene	30	ppb	25	12/22/99	12/22/99	GW	VOC Screen
1,4-Difluorobenzene (%SR)	103	ppb	0.	12/22/99	12/22/99	GW	VOC Screen
4-Bromofluorobenzene (%SR)	118	ppb	0.	12/22/99	12/22/99	GW	VOC Screen
Chlorobenzene-d5 (%SR)	109	ppb	0.	12/22/99	12/22/99	GW	VOC Screen

Lab ID No: AB67440 **Collection Date:** 12/10/99

Client Id: SGS-95 **Matrix:** Air

Parameter	Results	Units	Reporting Limit	Start Date	End Date	Analyst	Method
Volatile Organic Compounds							
1,2,4-Trimethylbenzene	Not detected	ppb	25	12/22/99	12/22/99	GW	VOC Screen
1,3,5-Trimethylbenzene	Not detected	ppb	25	12/22/99	12/22/99	GW	VOC Screen
Benzene	Not detected	ppb	25	12/22/99	12/22/99	GW	VOC Screen
Ethylbenzene	Not detected	ppb	25	12/22/99	12/22/99	GW	VOC Screen
m,p-Xylenes	Not detected	ppb	50	12/22/99	12/22/99	GW	VOC Screen
Methyl-t-butyl ether (MTBE)	Not detected	ppb	25	12/22/99	12/22/99	GW	VOC Screen
Naphthalene	Not detected	ppb	25	12/22/99	12/22/99	GW	VOC Screen
o-Xylene	Not detected	ppb	25	12/22/99	12/22/99	GW	VOC Screen
Toluene	Not detected	ppb	25	12/22/99	12/22/99	GW	VOC Screen
1,4-Difluorobenzene (%SR)	101	ppb	0.	12/22/99	12/22/99	GW	VOC Screen
4-Bromofluorobenzene (%SR)	106	ppb	0.	12/22/99	12/22/99	GW	VOC Screen
Chlorobenzene-d5 (%SR)	102	ppb	0.	12/22/99	12/22/99	GW	VOC Screen

Validated by:

12/27/99

President/Laboratory Director

Spectrum Analytical, Inc.
Laboratory Report Supplement

References

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$$\%RPD = \frac{(value1 - value2)}{ave.\ value} * 100\%$$

1215 1747 +51

SPECTRUM ANALYTICAL, INC.

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:
- [x] Standard TAT - 7 to 10 business days
- [ ] Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval. Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: ECS-VT

Project Mgr.: B. Tear

Invoice To: ECS-Agawam

P.O. No.: _____ RQN: 1777

Project No.: 40176
Site Name: Clapp Property
Location: Main St. Brattleboro State: VT
Sampler(s): L. Gilmore, N. Cardinale

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
8=CH_3OH 9=$NaHSO_4$ 10=_____ 11=_____

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW=Surface Water SO=Soil SL=Sludge A=Air
X1=_____ X2=_____ X3=_____

G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	Preservative	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic bags	Analyses: 8021B+MTBE/San	Notes:
AB 67439	SGS 2'	12/10/99	9:00	G	A					1	-	
AB 67440	SGS 9.5'	12/10/99	9:10	G	A					1	-	
AB												
AB												
AB												
AB												
AB												
AB												
AB												
AB												

Additional Instructions: _____

[x] Fax results when available to (802) 257-1603

Relinquished By:	Received By:	Date:	Time:
Kevin C. Collins	V. Knowles	12/10/99	3:38

11 Almgren Drive · Agawam, Massachusetts 01001 · 413-789-9018 · Fax 413-789-4076

SPECTRUM ANALYTICAL, INC.

Massachusetts Certification # M-MA138
Rhode Island # 98 Maine # MA138
Florida # E87600 / 87562
New Hampshire # 2538
Connecticut # PH-0777
New York # 11393

RECEIVED JAN - 4 2000

ECS, Inc.
157 Old Guilford Road, #6
Brattleboro, VT 05301

12/28/99

Attn: Bruce Tease

Client Project Number: 40189.40 **Location:** 176 Main St - Brattleboro, VT

Laboratory ID	Client Sample ID	Analyses Requested
AB67818	ECS-2	SW846 Method 8021B TPH by GC Separatory Funnel Extraction
AB67819	ECS-3	SW846 Method 8021B TPH by GC Separatory Funnel Extraction
AB67820	TRIP	SW846 Method 8021B

I attest that all information contained within this report has been reviewed for accuracy and checked against all quality control requirements outlined in each applicable method including any data obtained from a subcontract laboratory.

Authorized by:

Hanibal Q. Tayeh
President/Laboratory Director

SPECTRUM ANALYTICAL, INC.

Laboratory Report

Location: 176 Main St - Brattleboro, VT
Client: ECS
Lab ID No: AB67818
Client Id: ECS-2

Client Project No: 40189.40
Submittal Date: 12/16/99
Collection Date: 12/14/99
Matrix: Ground Water

Parameter	Results	Units	Reporting Limit	Start Date	End Date	Analyst	Method
Volatile Organic Compounds							
1,2,4-Trimethylbenzene	Not detected	ug/L	1.0	12/26/99	12/26/99	GW	SW846 8021B
1,3,5-Trimethylbenzene	Not detected	ug/L	1.0	12/26/99	12/26/99	GW	SW846 8021B
Benzene	Not detected	ug/L	1.0	12/26/99	12/26/99	GW	SW846 8021B
Ethylbenzene	Not detected	ug/L	1.0	12/26/99	12/26/99	GW	SW846 8021B
m,p-Xylenes	Not detected	ug/L	2.0	12/26/99	12/26/99	GW	SW846 8021B
Methyl-t-butyl ether (MTBE)	Not detected	ug/L	1.0	12/26/99	12/26/99	GW	SW846 8021B
Naphthalene	Not detected	ug/L	1.0	12/26/99	12/26/99	GW	SW846 8021B
o-Xylene	Not detected	ug/L	1.0	12/26/99	12/26/99	GW	SW846 8021B
Toluene	Not detected	ug/L	1.0	12/26/99	12/26/99	GW	SW846 8021B
1,4-Difluorobenzene (%SR)	102	ug/L		12/26/99	12/26/99	GW	SW846 8021B
4-Bromofluorobenzene (%SR)	99	ug/L		12/26/99	12/26/99	GW	SW846 8021B
Chlorobenzene-d5 (%SR)	99	ug/L		12/26/99	12/26/99	GW	SW846 8021B
TPH Preparation							
Separatory Funnel Extraction	Completed			12/21/99	12/21/99	DS	SW846 3510C
Petrolem Hydrocarbon Analysis							
Aviation Fuel	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
Fuel Oil #2	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
Fuel Oil #4	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
Fuel Oil #6	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
Gasoline	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
Ligroin	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
Motor Oil	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
Other Oil	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
Total Hydrocarbons (GC)	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
Unidentified	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
1-Chloro-octadecane (%SR)	64	mg/L		12/28/99	12/28/99	MB	SW846 8100M

Lab ID No: AB67819
Client Id: ECS-3

Collection Date: 12/14/99
Matrix: Ground Water

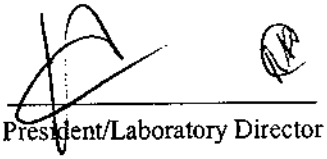
Parameter	Results	Units	Reporting Limit	Start Date	End Date	Analyst	Method
Volatile Organic Compounds							
1,2,4-Trimethylbenzene	Not detected	ug/L	1.0	12/26/99	12/26/99	GW	SW846 8021B
1,3,5-Trimethylbenzene	Not detected	ug/L	1.0	12/26/99	12/26/99	GW	SW846 8021B
Benzene	Not detected	ug/L	1.0	12/26/99	12/26/99	GW	SW846 8021B
Ethylbenzene	Not detected	ug/L	1.0	12/26/99	12/26/99	GW	SW846 8021B
m,p-Xylenes	Not detected	ug/L	2.0	12/26/99	12/26/99	GW	SW846 8021B
Methyl-t-butyl ether (MTBE)	Not detected	ug/L	1.0	12/26/99	12/26/99	GW	SW846 8021B
Naphthalene	Not detected	ug/L	1.0	12/26/99	12/26/99	GW	SW846 8021B
o-Xylene	Not detected	ug/L	1.0	12/26/99	12/26/99	GW	SW846 8021B
Toluene	Not detected	ug/L	1.0	12/26/99	12/26/99	GW	SW846 8021B
1,4-Difluorobenzene (%SR)	102	ug/L		12/26/99	12/26/99	GW	SW846 8021B
4-Bromofluorobenzene (%SR)	99	ug/L		12/26/99	12/26/99	GW	SW846 8021B
Chlorobenzene-d5 (%SR)	98	ug/L		12/26/99	12/26/99	GW	SW846 8021B
TPH Preparation							
Separatory Funnel Extraction	Completed			12/21/99	12/21/99	DS	SW846 3510C
Petrolem Hydrocarbon Analysis							
Aviation Fuel	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
Fuel Oil #2	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
Fuel Oil #4	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
Fuel Oil #6	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
Gasoline	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
Ligroin	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
Motor Oil	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
Other Oil	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
Total Hydrocarbons (GC)	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
Unidentified	Not detected	mg/L	0.2	12/28/99	12/28/99	MB	SW846 8100M
1-Chloro-octadecane (%SR)	60	mg/L		12/28/99	12/28/99	MB	SW846 8100M

Lab ID No: AB67820
Client Id: TRIP

Collection Date: 12/14/99
Matrix: Deionized Water

Parameter	Results	Units	Reporting Limit	Start Date	End Date	Analyst	Method
Volatile Organic Compounds							
1,2,4-Trimethylbenzene	Not detected	ug/L	1.0	12/26/99	12/26/99	DG	SW846 8021B
1,3,5-Trimethylbenzene	Not detected	ug/L	1.0	12/26/99	12/26/99	DG	SW846 8021B
Benzene	Not detected	ug/L	1.0	12/26/99	12/26/99	DG	SW846 8021B
Ethylbenzene	Not detected	ug/L	1.0	12/26/99	12/26/99	DG	SW846 8021B
m,p-Xylenes	Not detected	ug/L	2.0	12/26/99	12/26/99	DG	SW846 8021B
Methyl-t-butyl ether (MTBE)	Not detected	ug/L	1.0	12/26/99	12/26/99	DG	SW846 8021B
Naphthalene	Not detected	ug/L	1.0	12/26/99	12/26/99	DG	SW846 8021B
o-Xylene	Not detected	ug/L	1.0	12/26/99	12/26/99	DG	SW846 8021B
Toluene	Not detected	ug/L	1.0	12/26/99	12/26/99	DG	SW846 8021B
1,4-Difluorobenzene (%SR)	91	ug/L		12/26/99	12/26/99	DG	SW846 8021B
4-Bromofluorobenzene (%SR)	114	ug/L		12/26/99	12/26/99	DG	SW846 8021B
Chlorobenzene-d5 (%SR)	93	ug/L		12/26/99	12/26/99	DG	SW846 8021B

Validated by:



12/29/99

President/Laboratory Director

Spectrum Analytical, Inc.
Laboratory Report Supplement

References

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$$\%RPD = \frac{(value1 - value2)}{ave.\ value} * 100\%$$

12201207

CHAIN OF CUSTODY RECORD

SPECTRUM ANALYTICAL, INC.

Page 1 of 1

Special Handling:
- [x] Standard TAT - 7 to 10 business days
- [ ] Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval. Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: ECS-VT

Invoice To: ECS-MA

Project No.: 40189.40

Site Name: 176 Main St.

Location: Battleboro State: VT

Project Mgr.: B. Tetreault

P.O. No.: _____ RQN: 2727

Sampler(s): JCP

1=Na_2S2O_3 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
8=CH_3OH 9= $NaHSO_4$ 10=_____ 11=_____

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= DI H_2O X2=_____ X3=_____

G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	Preservative	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Analyses: 8021b ft	VT VOC Scan	8100 M	Notes:
AB 67818	ECS-2	12/14/99	3:36	G	GW	2	2	1			1		1	
AB 67819	ECS-3	12/14/99	3:49	G	GW	2	2	1			1		1	
AB 67820	TRIP	12/14/99	—	G	X1	2	1				1			
AB														
AB														
AB														
AB														
AB														
AB														
AB														

Additional Instructions:

VT VOC SCAN

☐ Fax results when available to (____) _____

Relinquished By:	Received By:	Date:	Time:
David C. Bade		12-16-99	1135
MB		12.16.99	315

11 Almgren Drive · Agawam, Massachusetts 01001 · 413-789-9018 · Fax 413-789-4076